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Nanotechnology in neuroscience: Section II, nanotube microelectrodes neurotransmitter measurements in the brain *

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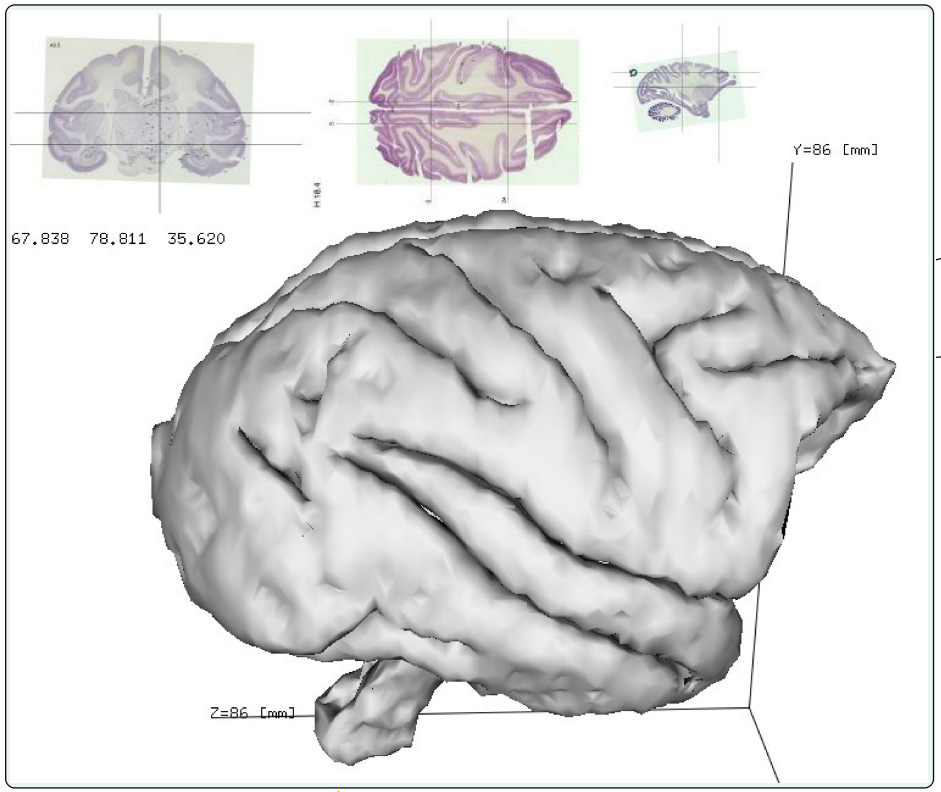
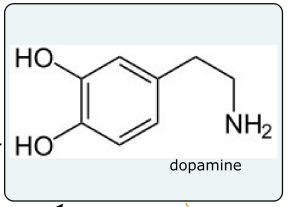
Abstract:

The first to experience the nanotube-modified microelectrodes, they were, B.E.Kumara Swamy, B. Jill Venton (2007). Based on them, we show the fundamentals of experimentation, the possibilities that nanotechnology offers measurement of neurotransmitters in real time.

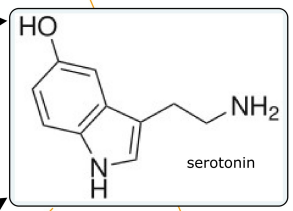
nanotubes5 microelectrodes

carbon-fiber microelectrodes modified





dopamine



serotonin

serotonin

dopamine

carbon-fiber microelectrodes

modified with single-walled carbon nanotubes5

co-detection of dopamine and serotonin

carbidopa

administration, serotonin precursor 5-HTP
Oxidation and reduction were achieved by zones
for dopamine and serotonin respectively

5-hydroxytryptophan

measurements :
using fast-scan cyclic voltammetry (electro-chemical technique)

to increase the amount of serotonin in the brain

several chemical mechanisms to cause the release of serotonin from dopamine neurons.

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